Common Ground Relief Youth Wetlands Education and Outreach Program Work Plan

I. Project Title and Purpose Statement

Project Title
Common Ground Relief Youth Wetlands Education and Outreach Program

Purpose Statement
The Common Ground Relief Youth Wetlands Education and Outreach Program directly addresses community climate resiliency, in relation to the **Clean Water Act, Section 104(b) (3),** by engaging local youth in adaptation strategies that improve water use efficiency and quality in local neighborhoods and communities.

The Common Ground Relief (CGR) Youth Wetlands Education and Outreach Program utilizes the following integrated environmental justice strategies to reduce water pollution and improve urban water quality, and to improve the resilience of local wetlands in the face of erosion and sea level rise: (1) education of local youth about the function of healthy wetlands and watersheds as well as the vulnerabilities to environmental risks in their neighborhoods and communities; (2) active engagement of local youth in research, hands-on projects and monitoring aimed towards the prevention, reduction, and elimination of water pollution; and (3) empowering local youth to actively participate and be a strong voice in the planning and decision-making processes that impact the region's sustainability.

The CGR Youth Wetlands Education and Outreach Program will serve elementary, middle and high school students in the primarily low-income New Orleans neighborhoods of Central City (70113), Treme (70116), Lower Ninth Ward (70117), Mid-City (70119), Gentilly (70122), Gert Town (70125), the CGR Native Plant Nursery II in the Lower Ninth Ward (70117) and planting and water testing locations including Bayou Bienvenue (70117), New Orleans City Park (70119), Bayou St. John (70119), Lake Pontchartrain (lake view area), locations along the Mississippi River and in various planting locations, to be determined.

II. Environmental, Public Health and Community Climate Resilience

Local Environmental, Public Health and Climate Resiliency Issues the Project Seeks to Address

The CGR Youth Wetlands Education and Outreach Program seeks to address: (1) the poor water quality of the Lake Pontchartrain and the Mississippi River urban watershed; (2) inadequacies of environmental learning in local schools, particularly around the causes and impact of climate change; (3) continued loss of valuable wetland; and (4) low levels of environmental literacy (knowledge, behavior, attitude and connectivity) among local youth.

Louisiana groundwater and surface waters transport sediments, nutrients, trace metals, and organic materials from hazardous chemical waste, agricultural products, and saltwater intrusion. Each year, local rainwater levels reach approximately 60 to 70 inches. Because the local water management infrastructure is not capable of handling drainage, much less treat runoff, these

pollutants end up in the urban stormwater management systems and eventually in Lake Pontchartrain and the Mississippi River where they cause irreparable damage to the health of our citizens, wildlife and environment.

Conventional water management facilities are one method of eliminating pollutants, but are high in cost both financially and environmentally. Coastal wetlands, which are well-known for providing a multitude of valuable functions including flood and erosion control, wildlife habitat, recreation and food, and water during droughts, are also an effective resource for water quality control. (Louisiana DEQ 1988; Doering et al. 1999). Because coastal wetlands are among the most vulnerable to climate-change and related seawater rise that are creating altered water flow, increased polluted runoff, increased salinity levels and lower water quality, New Orleans residents are deeply vulnerable to a range of social, environmental and economic impacts. Using nature to help people cope with the expected impacts of climate change is a strategy known as ecosystem-based adaptation.

While many New Orleans residents, young and old, are aware of and concerned about the disappearance of our wetlands as it relates to flooding, most have low levels of knowledge about its impact on water quality, economics, and recreation. According to a National Geographic study (Penn, Schoen and Berland, 2000a), only 14% of the public is familiar with the term "non-point source pollution." Moreover, many residents do not have the sense of connection with their natural environment that propels them to action. As a result, communities do not have the knowledge or impetus to identify and implement mitigation and adaptation strategies that strengthen their climate resiliency.

Expected Results

The CGR Youth Wetlands Education and Outreach Program will: (1) increase environmental literacy among local youth, with a focus on understanding the causes of climate change and its impact on wetlands functions; (2) engage local youth in mitigation and adaptation strategies that increase climate resiliency; (3) restore valuable wetlands; (4) demonstrate the ability of wetlands to improve the water quality of the Lake Pontchartrain and the Mississippi River urban watershed; (5) provide youth and adults with the tools and resources to be effective advocates for environmental stewardship.

The CGR Youth Wetlands Education and Outreach Program builds on and extends the work of CGR's existing Wetlands Restoration Program that addresses issues related to both coastal and urban environmental resiliency, as the health of these two ecosystems is intrinsically connected. The CGR Youth Wetlands Education and Outreach Program will focus on all wetlands functions, including water recycling and filtration, flood protection, wildlife habitat, and economic and recreation value.

Characteristics of Urban Setting and Disproportionate Impact by the environmental, public health and climate resiliency harm and risk:

New Orleans is a city more vulnerable than most when it comes to climate change, for two main reasons. The first is physical: (1) New Orleans' low elevation in relation to sea level combined with soil subsidence; and (2) the disappearance of nature's most valuable ecosystem – wetlands – through natural and manmade causes. The second one is socio-economic: those communities

living in the most physically vulnerable areas tend to be comprised of people of color, single parents, individuals of low socioeconomic status, the elderly, people with health constraints, and people historically marginalized in policymaking processes. According to the 2010 Census, the total population of the New Orleans metropolitan area is 343,829, with 24% of the residents living below poverty level, and approximately 70% of residents are considered minorities, of which 60% are African-American, 5% are Hispanic or Latino origin and 3% are Asian. The combination of these factors leads to extreme climate change vulnerability.

Ten years after Hurricane Katrina, projects in and near New Orleans have provided some level of flood protection. However, wetlands loss and poverty persist, disproportionately threatening New Orleans communities with flooding, degraded water quality, economic loss and other hazards. Polluted stormwater runoff affects the New Orleans residents that, due to food and transportation isolation, as well as economic hardship, secure their food from the surrounding water systems and home gardens, both of which are negatively affected by contaminants. Additionally, much of the green space, including parks and school grounds, are contaminated by the stormwater runoff, exposing young people to hazardous contaminants. Other problems, such as blighted properties, overgrown vacant lots, and illegal dumping, all contribute to the toxic materials carried by stormwater. When these stormwaters enter the urban watershed, without effectively functioning ecosystems in place, toxins spread and potentially affect more people as well as wildlife and surrounding wetlands.

Expected Benefits to New Orleans

This is a critical time in the development and determination of the environmental, social and economic health of New Orleans with the recent completion of the Hurricane and Storm Damage Risk Reduction System by the U.S. Army Corps of Engineers, the release of The Greater New Orleans Urban Water Plan and the Coast 2050: Toward a Sustainable Coastal Louisiana. With local agencies and organizations working in tandem to address the impacts of climate change, individuals and communities have the opportunity to participate in the decision making process of how best to enhance climate resiliency. However, the most disproportionately impacted communities face the greatest obstacles to this community engagement: lack of knowledge, skills and ownership.

The classroom-learning component of the CGR Youth Wetlands Education and Outreach Program will provide students, teachers, and parents with the information and skills needed to become knowledgeable environmental advocates. The experiential component will create the sense of ownership and connection needed to become active caretakers. In combination, the Program will create engaged ecological stewards that advocate for and restore the surrounding wetlands, which will yield environmental, physical, and economic health benefits to New Orleans communities and its residents.

III. Organization's Historical Connection to the Affected Community

History of Involvement

Established in September 2005, CGR has worked with residents of the Greater New Orleans area on a variety of projects designed to foster resilience and enhance their quality of life, including environmental restoration and stewardship, home rebuilding, job training, a free legal clinic and

the Anita Roddick Advocacy Center, which provides community meeting space and access to office equipment, such as a computer, fax and copying machines. CGR has maintained its office and volunteer facilities in the Lower Ninth Ward since its inception and is a strong, valued community member. In addition, the CGR Native Plant Nursery II is located in the Lower Ninth Ward and is open to the public for purposes of learning, recreation and relaxation.

Community Engagement, Neighborhood Participation and Enhanced Capacity:
CGR's mission is "to create resilient Gulf Coast communities that are environmentally sustainable, financially viable and personally cohesive." This mission is founded on the premise that a vibrant and resilient community requires equitable access to financial assets, education and a healthy environment. At the core of CGR's mission is its grassroots approach that respects New Orleans' unique neighborhoods, with their strong identity and leadership. CGR values and recognizes that community participation and leadership, from the outset, is imperative to the realization of successful outcomes. As such, it seeks to engage local residents, businesses and organizations as well as local, state and federal officials in all aspects of its programs and projects, from design to evaluation dissemination.

Since its inception, CGR has worked with hand-in-hand with residents throughout New Orleans to address prevailing social, infrastructure, environmental and public health issues including flooding, coastal erosion and soil contaminants. CGR has spearheaded efforts to regreen the local Lower Ninth Ward schools as well as streets and neutral grounds throughout the city, to restore Bayou Bienvenue in the Lower Ninth Ward and to improve water hydrology through *The Green Slice Water Catchment Project* that engaged members of the Lower Ninth Ward community and members of the Environmental Youth Green Team in green infrastructure design, skills building, learning, and knowledge production (funded by the EPA 2013 Environmental Justice Small Grants Program). As a result, the residents have: (1) gained greater and more accurate knowledge regarding the environmental and public health issues that affect their neighborhoods; (2) explored the options that are available for addressing these issues; (3) enhanced their ability to communicate their needs, abilities, and assets to public officials; and (4) created stronger, more cohesive and focused unions between the various community organizations.

An Ongoing Relationship
CGR has also been an active member of the strong network of Lower Ninth Ward community advocacy groups, including the Lower 9th Ward Stakeholders Initiative, which is comprised of neighborhood residents and leaders, and the Lower 9 School Development Association. Working together, these organizations have been successful in advocating for the reconstruction of the Sanchez Community Center and fire station as well as the construction of a new high school to be completed for the 2016-17 academic year. As a resident, community gathering space and active member in the various community organizations, CGR maintains and sustains ongoing relationships with diverse communities throughout Greater New Orleans.

IV. Project Description

Expected Environmental, Public Health and Climate Resiliency Results
Due to its low elevation and land subsidence rates, New Orleans is one of the most vulnerable U.S. cities to the impacts of climate change. One direct impact is the loss of our valuable coastal

wetlands that provide the first line of defense against storms, as well as rich wildlife habitats, economic and recreational support, and critical water filtration functions. These vulnerabilities were brought to the fore in the wake of Hurricanes Katrina and Rita. As New Orleans rebuilds from these catastrophic events, it has made many efforts that make it more resilient to the effects of climate change, land subsidence, and wetlands loss. Most of these efforts have focused on water management strategies to reduce flood hazards. While this focus is justified, these large-scale, manmade constructions do little to protect the wetlands that also protect the area and that often provide the least expensive, most efficient way to keep stormwater pollution from further degrading waterways.

True climate resiliency requires more than a piecemeal approach – it requires an interwoven and comprehensive approach that incorporates structural and environmentally sustainable elements. For this to happen, residents must be knowledgeable about all wetlands functions. Equally as important, New Orleans residents must possess a sense of connection with and ownership of its natural surroundings that drives them to fully participate in the creation of a climate resilient community. The CGR Youth Wetlands Education and Outreach Program seeks to: (1) increase levels of environmental literacy that enable local youth to identify and participate in mitigation and adaptation strategies that increase climate resiliency; and (2) demonstrate the effectiveness of healthy wetlands in providing a sustainable system for water filtration that improves water pollution and water quality in urban watersheds and reduces the risk of soil subsidence and flooding, as well as the cost and carbon footprint of water management facilities.

<u>Activities designed to educate, empower and enable the community to understand the environmental, public health and community climate resiliency</u>:
As stated above in Section III, the CGR Youth Wetlands Education and Outreach Program builds upon CGR's long-term wetlands restoration efforts. This education and outreach intervention is the result of CGR's strong commitment to fostering a high level of environmentally literacy among local youth and adults as well as local schools reaching out to CGR to provide engaging environmental education to their students. The CGR Youth Wetlands Education and Outreach Program will enable CGR and its partners to implement, monitor and evaluate an ecologically sustainable method for enhancing water quality as well as create a new generation of environmental stewards that are informed, capable and motivated to participate in actions that result in greater climate resiliency.

The CGR Youth Wetlands Education and Outreach Program Objectives, Strategies and Evaluation methods are as follows:

- **Objective 1:** Increase levels of environmental literacy that enable local youth to identify and participate in mitigation and adaptation strategies that increase climate resiliency**:**
    - **Strategy 1:1, *July 2015 – September 2015:*** Secure commitment from ten (10) schools (2 elementary, 3 middle and 5 high) to participate in education and outreach intervention;
        - Measure: Ten schools sign up to participate
    - **Strategy 1:2, *September 2015 – April 2016:*** Each school participates in 2-3 classroom sessions in which students use a grade level-appropriate curriculum to learn about climate change, wetlands functions, ecologically sustainable methods

for improving water quality, monitoring and evaluation methodology; and civic related issues;
    - Measure: Pre-surveys to measure knowledge, attitudes, and behavior of students and teachers regarding wetlands and water quality.
  - **Strategy 1:3, *September 2015 – April 2016:*** Students, parents and teachers engage in 2-3 hands-on water testing, tree and grass propagation at the school and/or CGR Native Plant Nursery and wetlands planting activities in surrounding wetlands sites;
    - Measure: Participants ability to understand and engage in activities
  - **Strategy 1:4, *September 2015 – May 2016:*** Students engage in information sharing through CGR and school hosted social media platforms.
    - Measure: Demonstration of changes in knowledge, attitudes, and behavior through written essays, photographs and other media platforms
  - **Strategy 1:5, *May 2016:*** Students engage in sharing sessions with other students, members of the community and civic leaders to discuss wetlands functions, lessons learned, experiences and findings, and methods to improve water quality;
    - Measure: Post-surveys to measure changes in knowledge, attitudes, and behavior of students and teachers regarding wetlands and water quality

- **Objective 2:** Demonstrate the effectiveness of healthy wetlands containing native plants to provide a sustainable system for water filtration that improves water pollution and water quality in urban watersheds and reduces the risk of soil subsidence and flooding, as well as the cost and carbon footprint of water management facilities.
  - **Strategy 2:1, *July 2015 – September 2015:*** Secure permission from appropriate agencies to utilize sites for water testing and wetlands plantings;
    - Measure: number of permits obtained
  - **Strategy 2:2, *September 2015 – April 2016:*** Students, parents and teachers seed native trees and grasses at school site and/or CGR Native Plant Nursery, engage in water testing and grass and tree plantings in nearby wetlands areas;
    - Measure: UNO biology students collect baseline data and take pre-test digital photos of wetlands restoration sites
  - **Strategy 2:3*, May 2016:*** Participating students and UNO biology students periodically monitor, evaluate, and photograph tree and grass growth and survival and water quality.
    - Measure: Changes in test results from water quality testing

The Program objectives and strategies are aligned with EPA's Strategic Plan Goal 3: "Cleaning Up Communities and Advancing Sustainable Development" and EPA's Cross-Agency Strategy, "Working to Make a Visible Difference in Communities," as follows:

- The strategy to improve water quality utilizes sustainable practices to achieve greater climate resilience and equitable distribution of environmental benefits;
- Residents, of all ages, gain the knowledge and skills to meaningfully participate in decisions that affects climate resiliency;
- The curriculum addresses the challenge that diverse communities face when attempting to balance the need for sustainable and livable communities with economic need; and
- The strategies are place-based activities.

Increasing the community's capacity to address local environmental, public health and community climate resiliency issues:

CGR's mission is firmly-rooted in community education and meaningful involvement as a means to ensure authentic, equitable, and sustainable revitalization. The CGR Youth Wetlands Education and Outreach Program is built on the belief that when young people are provided with environmental knowledge and given the opportunity to connect with their immediate natural surrounding, they will become effective ecological stewards with the capacity to create greater community climate resilience and shape a sustainable future. Furthermore, CGR recognizes that youth education and engagement is often an entry-point for adult engagement, which broadens the impact, ensures high levels of cultural competency and strengthens sustainability. By providing New Orleans' young people with the knowledge, skills and values to become ecological stewards, our communities will have the capacity to identify and implement mitigation and adaptation strategies that reduce their vulnerability in the face of climate change.

The CGR Youth Wetlands Education and Outreach Program is aligned with the White House Office of Science & Technology Policy's new Climate Education and Literacy Initiative that seeks to connect students and citizens with the best-available information about climate change (taken from http://www.whitehouse.gov/sites/default/files/microsites/ostp/climateed-dec-3-2014.pdf, Dec. 31, 2014). However, while classroom education provides students with information, it does not provide the hands-on experiences and place-based learning that establishes the connections needed to create the sense of ownership and commitment. Studies have shown that environmental education that combines scientifically sound instruction with an emphasis on experiential activities and skill-building, can cause a lasting change in the way some individuals feel and behave toward environmental resources (Coyle, K. (2005). *Environmental literacy in America: What ten years of NEETF/Roper research and related studies say about environmental literacy in the U.S*. Washington, DC: The National Environmental Education and Training Foundation; available at http://www.neefusa.org/pdf/ELR2005.pdf).

Related Environmental Statutes

In alignment with the Clean Water Act, Section 104(b) (3), the CGR Youth Wetlands Education and Outreach Program is designed to improve water quality through the prevention, reduction, and elimination of water pollution. This project will integrate the following activities that are authorized by this federal environmental statute: conduct and promote the coordination of learning, research, investigations, training, surveys, and studies (including monitoring) relating to the causes, demonstration projects, effects, extent, prevention, reduction, and elimination of water pollution.

Role of Partners: Mission, Resources, Vested Interest, Responsibilities, and Sustainability

CGR is strongly committed to partnering with other skilled, knowledgeable people, not-for-profits, community organizations, and businesses, in order to create sustainable, effective solutions to the problems facing our communities. The majority of CGR's partners provide access to coastal or urban areas. Others provide expertise in process and evaluation. This collaborative approach ensures that each organization can focus on the aspect in which they have the greatest expertise and capacity, which results in the effective utilization of financial and human resources. CGR's primary planting partners include:

- National Resources Conservation Service
- United States Army Corp of Engineers
- Barataria-Terrebonne National Estuary Program
- Louisiana Department of Wildlife and Fisheries

The University of New Orleans (UNO) Department of Biological Sciences will serve as CGR's primary monitoring and evaluation partner in the Youth Wetlands Education and Outreach Program. The UNO Department of Biological Sciences is committed to educating residents about and improving environmental and public health issues in the Greater New Orleans area. UNO biology students will assist with both the educational and the environmental components of the project. Under the guidance of university faculty, they will administer questionnaire surveys of student and teacher participants' knowledge, attitudes, and practices regarding wetlands and water resources before and after the intervention is complete. In the field they will assist with monitoring restoration sites before planting and in the months that follow, periodically measure plant growth and survivorship, and square meters of vegetated area. Students will document the process with photographs uploaded to an environmental monitoring resource on the worldwide web (http://picturepost.unh.edu). UNO biology students will then help to analyze and report on these data with pre-test/post-test comparisons.

UNO is an urban campus that serves the most diverse student body of any university in the state of Louisiana. A high percentage of UNO's students commute to campus from the very same neighborhoods as the other students served by this project. These college biology students will gain service-learning opportunities and capacity-building instruction in environmental monitoring and data analysis as part of the intervention.

The CGR Youth Wetlands Education and Outreach Program is designed to create a generation that is empowered to participate and influence decisions that affect their homes, livelihoods and communities. Upon completion of this grant project, CGR will continue to partner with the UNO Department of Biological Sciences in an effort to support, engage and empower people in their pursuit of environmental justice, smart growth and equitable development. CGR will actively seek funding that will support ongoing efforts to improve the environmental and public health in the Greater New Orleans area.

V. Organizational Capacity and Programmatic Capability

Systems, Experience, Management

CGR will oversee all aspects of the CGR Youth Wetlands Education and Outreach Program, including curriculum development, classroom and experiential learning activities, financial management, and logistics coordination including obtaining all necessary legal permits. Although CGR does not have prior experience in managing federal funds, it has significant experience in managing grant funding in amounts that range from $15,000 to $250,000. Additionally, it has served as a partner organization in other federal grants, including a 2013 EPA Environmental Justice Small Grant.

The CGR Executive Director, external accounting firm of Hienz & Macaluso, LLC, and Wetlands Coordinator administer all funded programs. CGR's Executive Director is responsible for draw-down of funds and immediate tracking of expenditures using Quickbooks. Grant funds are deposited into individual accounts as to ensure no co-mingling of funds. The CGR Wetlands staff administers the programs and all staff attends to reporting requirements with supervision by the Board of Directors.

CGR brings an expertise in program development and implementation, wetlands and urban environmental restoration, native plant growth, job training, home building, and volunteer organization. Since its inception, CGR has engaged over 45,000 volunteers, 20,000 of which have engaged in plantings of native grasses and trees in surrounding wetland areas as well as the installation of stormwater gardens in residential, commercial and civically owned green spaces throughout the Greater New Orleans area. During peak volunteer seasons, CGR organizes volunteer projects that include up to three days of planting, working at the Native Plant Nursery, engaging in local neighborhood projects or undertaking invasive species removal. During each planting, up to thirty volunteers plant approximately 4,000 plugs of marsh grass or 350 trees. In 2014, CGR hosted over 500 volunteers as well as coordinated groups from 28 different colleges and high schools from around the country, many of which are annual repeat volunteers.

CGR also has direct experience engaging local secondary level students in environmental education programs. Since 2006, CGR has partnered with the Dr. King Charter School in the Lower Ninth Ward and other local public, private and parochial schools to create, maintain and utilize growing and wetlands demonstration gardens on school sites. CGR has partnered with Groundwork New Orleans to coordinate the Environmental Science Youth Green Team, a group of high school students that participate in green infrastructure design and job training. CGR, Groundwork New Orleans and the Youth Green Team were actively engaged in the *Green Slice Water Catchment Project: Restoring an Urban Neighborhood Watershed*, which was funded by a 2103 EPA Environmental Justice Small Grant and successfully realized its goals and objectives.

In order to effectively monitor and evaluate the ecological and climate adaptation processes, outcomes, and impacts, CGR will partner with University of New Orleans, Department of Biological Sciences. Dr. J. Lawrence Dew will work with a team of university students and participating students to ensure the use of standardized environmental and social science monitoring and evaluation protocols.

Highly regarded for its ability to organize engaging and mutually beneficial volunteer experiences, CGR has become a model for volunteer engagement and community revitalization. A key strategy to realizing its programmatic goals is a primary focus on connecting the program participants with the local culture, environment and goals. As a long-time resident of the Lower Ninth Ward and active participant in the revitalization of Greater New Orleans neighborhoods, CGR has a deep understanding of community capacity and aspirations, which it imparts into all aspects of its programmatic design, implementation and evaluation.

VI. Qualifications of the Project Manager

CGR's internal Project Manager for the CGR Youth Wetlands Education and Outreach Program is James Stram, CGR Wetlands Coordinator since 2011. Mr. Stram graduated from McGill University with a B.Sc in Environmental Science, majoring in renewable resource management. Mr. Stram has coordinated and worked with thousands of volunteers, of all ages and backgrounds, on both coastal wetlands and urban planting projects and is skilled in all aspects of volunteer engagement and safety. Stram resides in the Lower Ninth Ward, just a few blocks from the CGR office and Native Plant Nursery. He is fully supported by the Executive Director,

a large and ever-present team of volunteers and key partners, as well as a diverse Board of Directors, of which several of the members reside in the Lower Ninth Ward.

Past Performance in Reporting on Outputs and Outcomes

VII. Past Performance in Reporting on Outputs and Outcomes

In the past three years, CGR has received grants that support its environmental projects from the following funding organizations:

2012:
- Freeport McMoRan Copper and Gold Foundation: $12,500, Enhancement of the Common Ground Relief's Wetlands Restoration Station Native Plant Nursery (Suzanne LeBaron)
- Coypu Foundation: $33,000, Common Ground Relief Native Plant Nursery (Elizabeth Ary)

2013:
- Coypu Foundation/JP Morgan: $25,000, Common Ground Relief Wetlands Restoration Program: Enhancement, Growth and Implementation (Elizabeth Ary)

2014:
- Entergy Charitable Foundation: $6,450, Common Ground Relief: Bayou Bienvenue Wetland Triangle Restoration Project (Patty Riddlebarger)

CGR has documented and reported on the identified outputs and outcomes in both mid and final reports to all funders that have requested such. CGR has utilized a variety of evaluation metrics including qualitative and quantitative surveys, counts and growth rates.

VIII. Quality Assurance Project Plan

CGR anticipates that the CGR Youth Wetlands Education and Outreach Program will require the use of existing environmental data and collection of new data. Accordingly, CGR and UNO anticipate the need for a QAPP to document methods and procedures for the data collection phases of the project. The QAPP will be prepared prior to any activities and approved by the EPA QA officer prior to any sampling/analytical activities.